PR-9

INVESTIGATION ON SYNTHESIS, STRUCTURAL AND OPTICAL PROPERTIES OF CDS NANOPARTICLES

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Abstract. Hexagonal wurtzite structured CdS nanoparticles were synthesized by using chemical precipitation method. Various spectroscopic technics were used for the characterization of the prepared sample. X-ray diffraction pattern shows the high intense crystalline peaks and the average crystallite size is found to be 19 nm. FT-IR spectrum exhibited a metal sulfide band at 615 cm^{-1} and other functional groups. SEM micrographs reveal the non-uniformly distributed spherical shaped structures. EDS analysis confirms the stoichiometric composition and presence of target elements. Optical absorption spectrum exhibited a broad peak at 510 nm, which indicates the shifting of absorption rage of CdS nanoparticles into the visible region. PL spectrum exhibited the characteristic emission bands in visible region.